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Amr Salama

Euro-Mediterranean Center
on Climate Change (CMCC)



👤 Personal Statement

I am a post-doctoral oceanography researcher at the Euro-Mediterranean Center on Climate Change (CMCC). I completed my PhD at the Department of Physics and Astronomy “Augusto Righi” at Bologna University, where my doctoral research focused on the historical changes in the Benguela upwelling system over the past four decades of global warming, employing a coupled physical-biogeochemical modeling approach. With more than 10 years of experience in ocean modeling, I have utilized various models to elucidate biogeochemical dynamics within marine environments and their interactions with physical circulations. My work includes extensive ocean sampling and comprehensive laboratory analyses to generate critical data for these models. My expertise encompasses configuring and post-processing simulations of coupled models for both global and regional applications.

🎓 Education

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- **PhD in "Future Earth, Climate Change and Societal Challenges " 36th cycle** 2020 - 2024
Department of Physics and Astronomy “Augusto Righi”,
Bologna University, Italy.
 - **Thesis title:** Response of the Benguela Upwelling System to Four Decades of Global Warming.
 - **Advisors:** Prof. Marco Zavatarelli | Dr. Momme Butenschön | Dr. Tomas Lovato
 - **Master of Science in Environmental Studies-Physical Sciences** 2013 – 2018
Department of Environmental Studies,
Institute of Graduate Studies and Research, Alexandria University, Egypt.
 - **Thesis Title:** Nitrogen Dynamic Modeling in the Marine Environment off Lake Idku Outlet, Abu Qir Bay.
 - **Advisors:** Prof. Samir M. Nasr | Prof. Ahmed E. Rifaat
 - **Bachelor of Science in General Oceanography** 2008 – 2012
Department of Oceanography, Faculty of Science, Alexandria University, Egypt.
 - **Cumulative Grade point average (GPA): 3.1 out of 4 (≈ Very Good).**

🔍 Research fields

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- Coupled physical-biogeochemical models: application for global and regional simulations.
 - Nesting and downscaling techniques for regional ocean models.
 - Studying the effects of past climate changes on marine biogeochemical dynamics.
 - Revealing the influence of physical ocean circulation on biogeochemical fluxes.
 - Monitoring coastal water quality using laboratory analyses and remote sensing techniques.

🧰 Research experience

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- Setting up a coupled physical-biogeochemical model for the Benguela upwelling system utilizing the NEMO-BFM modeling suites, as part of doctoral research.
 - Developing a highly resolved coupled hydrodynamic-water quality model for an Egyptian coastal estuary to study nitrogen fluxes dynamics, as part of M.Sc. thesis.
 - Evaluating coastal water quality along the Egyptian Mediterranean Coast.

Teaching experience

- **Research Assistant** 2013 – 2020
 Department of Environmental Studies, Institute of Graduate Studies and Research, Alexandria University, Egypt.
 ▪ Assisted departmental faculty in delivering classroom instruction and preparing teaching materials pertinent to environmental science, alongside conducting laboratory analyses seminars.
- **Numerical Modeling Instructor** 2018 - 2020
 Alexandria Research Center for Adaptation to Climate Change, Alexandria, Egypt.
 ▪ Held two workshops focusing on the utilization of the **Delft3D** modeling suite for the development of hydrodynamics, tidal, and water quality models.

Projects

- **Monitoring of Coastal Water Quality along the Egyptian Mediterranean Coast** 2013 - 2020
 Institute of Graduate Studies and Research, Alexandria University, Egypt.
 ▪ Executing field cruises for water and sediment sampling from coastal waters.
 ▪ Conducting laboratory measures, alongside data interpretation and statistical analyses.

Workshops

- **EuroSea/OceanPredict workshop on "Ocean Prediction and Observing System Design"** 29 June - 1 July 2022
 Met Office, Exeter, United Kingdom.
 ▪ **Abstract title:** Past and future changes in the Benguela upwelling system with global warming.
- **CLIVAR-FIO Summer School on " Past, Present and Future Sea Level Changes & UNESCO IOC-ODC Training Course on Ocean Forecast System "** 25 June - 7 July 2018
 The First Institute of Oceanography (FIO), Qingdao, China.
 ▪ **Awarded the best trainee.**
- **Training Programme on Regional Ocean Governance for the Mediterranean, Black, Baltic & Caspian Seas.** 6 Nov - 8 Dec 2016
 International Ocean Institute (IOI), University of Malta, Malta.

Conference Papers

- **Response of the Benguela upwelling system to four decades of global warming** 23 – 28 Apr 2023
Amr Talaat Salama, Marco Zavatarelli, Momme Butenschön, and Tomas Lovato
 EGU General Assembly 2023, Vienna, Austria.
- **Decadal variability of the Benguela upwelling system with global warming** 17 – 21 Apr 2023
Amr Talaat Salama, Marco Zavatarelli, Momme Butenschön, and Tomas Lovato
 5th International Symposium on the Effects of Climate Change on the World's Ocean
 Bergen, Norway.
- **A modelling approach to investigate the biogeochemical cycle of nitrogen and the spatial dispersion in an estuarine system.** 7 - 11 Oct 2019
 Samir M. Nasr, **Amr T. Salama**, Ahmed E. Rifaat
 The 42nd CIESM Congress, Cascais, Portugal.
- **Modelling of the biogeochemical cycle and dispersion of nitrogen off Lake Idku outlet, Abu Qir bay, Egypt.** 3 - 7 Sep 2018
 Samir Nasr, Ahmed Rifaat, **Amr Salama**
 Ocean Deoxygenation: Drivers and Consequences. Past. Present. Future.
 Kiely University, Germany.

Study abroad

- Student fellow at the National Oceanography Centre, Southampton, UK.** Apr – Jul 2023
Supervisor: Prof. Stephanie Henson | Dr. Elisa Lovecchio
 ■ Using glider data to validate a NEMO-BFM model for the Benguela upwelling system.
- Visiting scholar at Virginia Institute of Marine Science, Virginia, USA.** Sep - Dec 2018
Supervisor: Dr. Mark J. Brush
 ■ Applied a hybrid empirical-mechanistic model to study eutrophication and hypoxia in an Egyptian northern lake.
 ■ Attended "**Ecosystem Modeling**" course, which offers an overview of quantitative modeling for marine ecosystems, emphasizing the development of mechanistic models for biogeochemical cycles.




Funding

- Funding for M.Sc. dissertation research work** 2019 - 2020
Funding Agency: Egyptian Science & Technology Development Fund (STDF), Cairo, Egypt.
- Funding for a short-term visit to the National Oceanography Centre** Apr – Jul 2023
Funding Agency: Marco Polo Scholarship, University of Bologna, Italy.

Modelling and programming Skills



Languages

 Arabic: Native Language	 English: IELTS with Overall score 6.5 (B2)	 Italian: B2 Level
	Listening 6.5 <div><div></div></div> Reading 6.5 <div><div></div></div> Writing 5.5 <div><div></div></div> Speaking 7.5 <div><div></div></div>	

Reference

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Prof. Samir M. Nasr Professor of Marine Geochemistry, Institute of Graduate Studies and Research, Alexandria University, Egypt. ☎ (+20) 1223241756 ✉ samir_nasr@yahoo.com	Prof. Ahmed E. Rifaat Professor of Marine Geology, National Institute of Oceanography and Fisheries, Alexandria, Egypt. ☎ (+20) 1093983153 ✉ aerifaat@yahoo.com.uk	Dr. Mark J. Brush Associate professor of marine science, Virginia Institute of Marine Science, VA, USA. ☎ (+1) 804 6847402 ✉ brush@vims.edu